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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX LABORATORY
1337 S. 46TH STREET
BLDG. 201
RICHMOND, CA 94804-4698

DEC 2 4 2002

MEMORANDUM

SUBJECT: Case R03S08
Results for 1,4-Dioxane Analysis

FROM: Brenda Bettencourt, Director
EPA Region 9 Laboratory (PMD-2)

TO: Nancy Riveland-Har, Remedial Project Manager
Site Cleanup Section 4 (SFD-7-4)

Attached are the report narrative and results spreadsheet from analysis of samples from the Omega Chemical Superfund site. These data have been reviewed in accordance with EPA Region 9 Laboratory policy. Summary information for the data included in this report is as follows:

SITE/PROJECT:	Omega Chemical
CASE:	R03S08
LABORATORY:	U. S. EPA Region 9 Laboratory
SAMPLE DELIVERY GROUPS:	02323D, 02330B
ANALYSES:	1,4-Dioxane (EPA method 8270C)

A full documentation package for these data, including raw data and sample custody documentation, is on file at the EPA Region 9 Laboratory. If you would like to request additional review and/or validation of the data, please contact Vance Fong at the Region 9 Quality Assurance Office.

If you have any questions please contact Rich Bauer at (510) 412-2312, or Ken Hendrix at (510) 412-2321.

ATTACHMENT: Analytical Reports

USEPA REGION 9 LABORATORY REPORT NARRATIVE

CASE NUMBER:	**R03S08**
SAMPLE DELIVERY GROUP (SDG):	**02323D**
PROGRAM:	**Superfund**
DOCUMENT CONTROL #:	**B0101145-2258**
ANALYSIS PERFORMED:	**1,4-Dioxane**
DATE:	**December 17, 2002**

SAMPLE NUMBERS:

Client Sample ID	Laboratory Sample ID	Client Sample ID	Laboratory Sample ID
GW402-MW08 A-0040	AB37672	GW402-MW09B-0054	AB37737
GW402-MW08 B-0070	AB37673	GW402-MW02A-0055	AB37766
GW402-MW08 C-0087	AB37674	GW402-MW05A-0049	AB37767
GW402-MW08 D-0116	AB37675	GW402-OW1A-0080	AB37797
GW402-MW01 A-0055	AB37676	GW402-OW1B-0116	AB37798
GW402-MW01 B-0080	AB37677	GW402-OW7-0081	AB37799
GW402-MW01 B-1080	AB37678	GW402-OW2-0078	AB37824
GW402-MW10 A-0057	AB37679	GW402-OW3-0080	AB37825
GW402-MW06A-0042	AB37735	GW402-OW5-0048	AB37826
GW402-MW09A-0032	AB37736	GW402-OW5-1048	AB37827

GENERAL COMMENTS

Twenty (20) water samples were received at the EPA Region 9 Laboratory on 11/19/02, 11/20/02, 11/21/02, 11/23/02, and 11/25/02 from the Omega Chemical project.

The samples were analyzed for 1,4-dioxane in accordance with Region 9 Laboratory SOP 315, *Semivolatile Organics Analysis,* modified to include 1,4-dioxane, based on EPA SW 846 Method 8270C, *Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)*, Revision 3, December 1996.

SAMPLE RECEIPT AND PRESERVATION

No issues related to shipping or preservation were encountered with these samples.

QA/QC AND ANALYTICAL COMMENTS

The following comments appear on the Summary of Analytical Results.

A. Results detected at concentrations below the quantitation limit (QL) but greater than or equal to one half the QL are reported with a "J" flag to indicate the uncertainty of quantitation at these levels.

B. The internal standard areas for the samples listed below do not meet the QC limits. Detected results and quantitation limits for the analyte associated with the internal standard in the samples listed below are estimated and "J" flagged.

Sample ID	Lab ID	Internal Standard	Area Count	QC Limit
GW402-MW01 A-0057	AB37679	1,4-Dioxane-d8	45543	52379 - 209516
GW402-MW01 A-0057MS	AB37679MS	1,4-Dioxane-d8	37846	43230 - 172918
GW402-MW08 B-0070	AB37673	1,4-Dioxane-d8	44582	49169 - 196678
GW402-MW08 C-0087	AB37674	1,4-Dioxane-d8	43558	49169 - 196678
GW402-MW09B-0054	AB37737	1,4-Dioxane-d8	40986	43230 - 172918

The following QC results are associated with the samples in this SDG:

QC requirements were met for the initial calibration and all CCVs.

QC limits were met for all QCS percent differences, surrogate percent recoveries, LFB percent recoveries, LFM/LFMD (QC samples: GW402-MW08-0040 and GW402-MW01 A-0057) percent recoveries, internal standard area counts and retention times, and QLS percent recoveries, except as noted above.

All samples were extracted within the 7 day holding time for water samples and analyzed within the 40 day extract holding time.

No 1,4-dioxane was detected in the LRBs associated with these samples.

Any questions in reference to this data package may be addressed to Ziyad Rajabi at (510) 412-2390.

GLOSSARY

Initial Calibration
The initial calibration demonstrates that the instrument is capable of meeting the minimum relative response factors (RRFs) and has a linear calibration curve described by percent relative standard deviation (%RSD). The average RRFs determined in the initial calibration are used to quantitate analytes and surrogates.

Quality Control Standard (QCS)
The quality control standard is a mid-point calibration standard prepared from a source different than the calibration standards. The QCS is used to check the accuracy of the initial calibration standards.

Continuing Calibration Verification (CCV)
The continuing calibration verification checks the instrument performance daily by ensuring the instrument is capable of meeting the minimum relative response factors (RRFs) and continues to meet the linear calibration curve as demonstrated by percent difference (%D).

Quantitation Limit Standard (QLS)
The quantitation limit standard is used to demonstrate low level quantitation performance for all target compounds.

Laboratory Reagent Blanks (LRBs)
A laboratory reagent blank is laboratory reagent water or baked sand with all reagents, surrogates, and internal standards added and carried through the same sample preparation and analytical procedures as the field samples. The LRB is used to determine the level of contamination introduced by the laboratory during extraction and analysis.

Surrogates
Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to extraction. Surrogate percent recovery (%R) provides information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

Laboratory Fortified Sample Matrix and Duplicate (LFM and LFMD) Analysis
Laboratory fortified sample matrix and duplicate analyses provide information about the effect of the sample matrix on sample preparation and measurement. Poor percent recovery (%R) results and large relative percent difference (RPD) between duplicates may indicate inconsistent laboratory technique, sample nonhomogeneity in soils, or matrix effects which may interfere with analysis.

Laboratory Fortified Blank (LFB) Analysis
A laboratory fortified blank is laboratory reagent water or baked sand with all reagents, surrogates, internal standards and representative target compounds added and carried through the same sample preparation and analytical procedures as the field samples. The LFB analyses

provide information about the laboratory and method performance. Poor percent recovery (%R) results may indicate poor laboratory technique or poor method performance for a particular class of compounds.

Internal Standards

Internal standards are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with internal standard compounds prior to analysis. Internal standard recoveries and retention times provides information about both the instrument performance on individual samples and the possible effects of the sample matrix on the analytical results.

Suffixes to Sample ID and Lab ID

The following suffixes may be attached to sample ID's and lab ID's to distinguish between different extraction samples or analytical runs: RX for reextraction, RE for reanalysis, and DL for dilution analysis.

EPA REGION 9 - LABORATORY - RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case: R03S08
Site: Omega Chemical
SDG: 02323D
Date: 12/18/02
Analysis: 8270C
Matrix: water

Sample No.	GW402-MW01 A-0055			GW402-MW10 A-0057			GW402-MW01 B-0080			GW402-MW01 B-1080			GW402-MW02A-0055		
Location	MW01A			MW10A			MW01B			MW01B			MW02A		
Lab Sample ID	AB37676			AB37679			AB37677			AB37678			AB37766		
Date of Collection	11/18/02			11/18/02			11/18/02			11/18/02			11/20/02		
Units	ug/L			ug/L			ug/L			ug/L			ug/L		
Analyte	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt
1,4-Dioxane	1	U		8	J	B	0.6	J	A	0.6	J	A	210		

Cmt:Refer to corresponding section in the report narrative for each letter
N/A:Not Applicable
N/R:Not Reported
U:Parameter was analyzed, not detected. Value is quant. limit, adjusted for dilution, if any
J:Estimated

EPA REGION 9 - LABORATORY - RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case: R03S08
Site: Omega Chemical
SDG: 02323D
Date: 12/18/02
Analysis: 8270C
Matrix: water

Sample No.	GW402-MW05A-0049			GW402-MW06A-0042			GW402-MW08 A-0040			GW402-MW08 B-0070			GW402-MW08 C-0087		
Location	MW05A			MW06A			MW08A			MW08B			MW08C		
Lab Sample ID	AB37767			AB37735			AB37672			AB37673			AB37674		
Date of Collection	11/20/02			11/19/02			11/15/02			11/15/02			11/15/02		
Units	ug/L			ug/L			ug/L			ug/L			ug/L		
Analyte	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt
1,4-Dioxane	120			19			1			1	UJ	B	1	UJ	B

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EPA REGION 9 - LABORATORY - RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case: R03S08
Site: Omega Chemical
SDG: 02323D
Date: 12/18/02
Analysis: 8270C
Matrix: water

Sample No.	GW402-MW08 D-0116			GW402-MW09A-0032			GW402-MW09B-0054			GW402-OW1A-0080			GW402-OW1B-0116		
Location	MW08D			MW09A			MW09B			OW1A			OW1B		
Lab Sample ID	AB37675			AB37736			AB37737			AB37797			AB37798		
Date of Collection	11/15/02			11/19/02			11/19/02			11/22/02			11/22/02		
Units	ug/L			ug/L			ug/L			ug/L			ug/L		
Analyte	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt
1,4-Dioxane	1	U		0.6	J	A	0.8	J	AB	72000			48		

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EPA REGION 9 - LABORATORY - RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case: R03S08
Site: *Omega Chemical*
SDG: 02323D
Date: 12/18/02
Analysis: 8270C
Matrix: water

Sample No.	GW402-OW2-0078			GW402-OW3-0080			GW402-OW5-0048			GW402-OW5-1048			GW402-OW7-0081		
Location	OW2			OW3			OW5			OW5			OW7		
Lab Sample ID	AB37824			AB37825			AB37826			AB37827			AB37799		
Date of Collection	11/25/02			11/25/02			11/25/02			11/25/02			11/22/02		
Units	ug/L			ug/L			ug/L			ug/L			ug/L		
Analyte	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt
1,4-Dioxane	1	U		0.7	J	A	16			17			1	U	

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EPA REGION 9 - LABORATORY - RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case: R03S08
Site: Omega Chemical
SDG: 02323D
Date: 12/18/02
Analysis: 8270C
Matrix: water

Sample No.	Method Blank-1			Method Blank-2			Method Blank-3								
Location															
Lab Sample ID	DBLK326			DBLK329			DBLK336								
Date of Collection	11/22/02			11/25/02			12/2/02								
Units	ug/L			ug/L			ug/L								
Analyte	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt						
1,4-Dioxane	1	U		1	U		1	U							

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USEPA REGION 9 LABORATORY
REPORT NARRATIVE

CASE NUMBER:	**R03S08**
SAMPLE DELIVERY GROUP (SDG):	**02330B**
PROGRAM:	**Superfund**
DOCUMENT CONTROL #:	**B0101145-2264**
ANALYSIS PERFORMED:	**1,4-Dioxane**
DATE:	**December 18, 2002**

SAMPLE NUMBERS:

Client Sample ID	Laboratory Sample ID	Client Sample ID	Laboratory Sample ID
GW402-OW8-0075	AB37828	GW402-OW4B-0125	AB37830
GW402-OW4A-0073	AB37829	GW402-OW6-0048	AB37831

GENERAL COMMENTS

Four (4) water samples were received at the EPA Region 9 Laboratory on 11/26/02 and 11/27/02 from the Omega Chemical project.

The samples were analyzed for 1,4-dioxane in accordance with Region 9 Laboratory SOP 315, *Semivolatile Organics Analysis,* modified to include 1,4-dioxane, based on EPA SW 846 Method 8270C, *Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)*, Revision 3, December 1996.

SAMPLE RECEIPT AND PRESERVATION

No issues related to shipping or preservation were encountered with these samples.

QA/QC AND ANALYTICAL COMMENTS

No comments appear on the Summary of Analytical Results.

The following QC results are associated with the samples in this SDG:

QC requirements were met for the initial calibration and all CCVs.

QC limits were met for all QCS percent differences, surrogate percent recoveries, LFB percent recoveries, internal standard area counts and retention times, (QC samples: GW402-OW4B-0125) percent recoveries, and QLS percent recoveries.

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SUMMARY OF ANALYTICAL RESULTS

Case: R03S08
Site: Omega Chemical
SDG: 02330B
Date: 12/19/2002
Analysis: 8270C
Matrix: water

Sample No.	GW402-OW4A-0073			GW402-OW4B-0125			GW402-OW6-0048			GW402-OW8-0075			Method Blank-1		
Location	OW4A			OW4B			OW6			OW8					
Lab Sample ID	AB37829			AB37830			AB37831			AB37828			DBLK336		
Date of Collection	11/26/2002			11/26/2002			11/26/2002			11/25/2002			12/2/2002		
Units	ug/L			ug/L			ug/L			ug/L			ug/L		
Analyte	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt	Result	Q	Cmt
1,4-Dioxane	2			1	U		1			510			1	U	

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J:Estimated

EPA REGION 9 - LABORATORY - RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case: R03S08
Site: Omega Chemical
SDG: 02330B
Date: 12/19/2002
Analysis: 8270C
Matrix: water

Sample No.	Method Blank-2		
Location			
Lab Sample ID	DBLK337		
Date of Collection	12/3/2002		
Units	ug/L		
Analyte	Result	Q	Cmt
1,4-Dioxane	1	U	

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